

**CITY OF MIAMI BEACH**  
**Office of the City Manager**  
**Letter to Commission No. 229-2004**



**To:** Mayor David Dermer and  
Members of the City Commission

**Date:** August 26, 2004

**From:** Jorge M. Gonzalez  
City Manager

**Subject:** **REHABILITATION OF THE 63RD STREET BRIDGE, CONSTRUCTION OF  
AT-GRADE INTERSECTION AT 63RD STREET AND INDIAN CREEK  
DRIVE, AND RECONSTRUCTION OF INDIAN CREEK DRIVE FROM 63RD  
STREET TO ABBOTT AVENUE**

Early this week I met Florida Department of Transportation (FDOT) officials to better understand the subject project but primarily to get answers to the allegations made by Mr. Ted Berman that the existing drawbridge did not need complete renovation. I was satisfied with FDOT answers and requested that you be given the same opportunity to review their project information in individual meetings scheduled for tomorrow.

In advance of the meeting, I am forwarding copy of letter from FDOT regarding the 63<sup>rd</sup> Street Bascule Bridge Rehabilitation and pictures documenting the condition of the bridge.

I am also forwarding copy of a Technical Memorandum that contains the following:

1. Review of the handout entitled "63<sup>rd</sup> Street Flyover – Citizens Transportation Advisory Committee (CTAC)," dated July 14, 2004, as provided by FDOT.
2. Level of Service (LOS) analysis for a variation of the No-Build Alternative which has been referred to as Alternative 3 in previous FDOT and City studies. The variation, hereinafter referred to as Alternative 3A, calls for eliminating the west-bound movements (right and left turns) at the 63<sup>rd</sup> Street study intersection.
3. Summary of additional operating performance measures to compare the various alternatives.

*JMG*  
JMG/RSM/FHB/II

c: Robert C. Middaugh, Assistant City Manager  
Fred H. Beckmann, Director of Public Works

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RECEIVED



## Florida Department of Transportation

JEB BUSH  
GOVERNOR

1000 Northwest 111<sup>th</sup> Avenue  
Miami, Florida 33172-5800  
Telephone No.: (305) 470-5464

JOSE ABREU  
SECRETARY

August 19, 2004

Fred Beckmann, P.E.  
Public Works Director  
City of Miami Beach  
1700 Convention Center Drive  
Miami Beach, Florida 33139

Re: FM No. 249940-1 / 407935-1 / Replacement of 63<sup>rd</sup> Street Flyover and  
63<sup>rd</sup> Street Bascule Bridge rehabilitation

*Fred*  
Dear Mr. Beckmann:

The Department has reviewed the e-mail that you forwarded to us from Mr. Berman and Mr. Weithorn. The e-mail refers to a small portion of the Bridge Inspection Report "Fracture Critical Inspection Report" dated January 30, 2004. We believe that they have reached their conclusions with incomplete information.

Bascule bridges are completely inspected every two years and once a year for Fracture Critical Members. The complete report dated February 12, 2003 covers the electrical and mechanical components which are not included in the 2004 report. In addition, a complete Bridge Development Report (BDR) was performed on the structure in May 2003 which included bridge load ratings. This BDR revealed numerous structural, mechanical and electrical system deficiencies that need immediate attention.

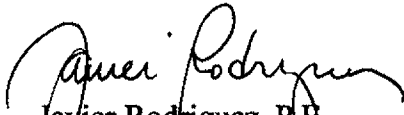
The structural components inspection indicates that the entire bridge is corroded and some members have 100 % section loss under the sidewalks. From our bridge load rating calculations, we have determined that one of the floor beams controls the structural capacity of the bridge. This beam by code requirements must be replaced. Other structural members are also in need of replacement or strengthening. As for the mechanical components, the span drive machinery was heavily corroded, heavily worn, and lacks a means of load sharing between the rack pinions. One of the enclosed reducers had heavy internal corrosion with rust particles contaminating the lubrication and contributing to potential bearing failure. The main rack teeth engaged with the leaves seated were deformed from restraining the leaves from bouncing under live load. The machinery brakes were in poor condition and may not stop or hold the leaves in an emergency stop or high wind condition. The deficient electrical items identified in the report include the lack of a standby generator capable of operating the gates or leafs. Other major critical equipment and systems also need to be replaced, including the brakes, span locks, traffic signals and the conduit and wiring system.

F. Beckmann  
8/20/2004  
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As requested, the Department will provide the City copies of all the Bridge Inspection Reports. We trust that you will agree with our assessment that this bridge has reached its useful life and major structural, mechanical and electrical renovations are required to ensure the continued safe operations of the bridge.

If you have any questions, please feel free to contact me at (305) 470-5464.

Sincerely,



Javier Rodriguez, P.E.  
Director of Production

cc: John Martinez, Secretary FDOT District VI  
Gus Pego, District Director of Operations  
Frank Guyamier, District Structures and Facilities Engineer

**Abbreviated Inspection Report**

**For**

**N.W. 63<sup>rd</sup> Street Bascule Bridge**

**Over**

**Indian Creek Canal**

**Miami Beach, Miami-Dade County Florida**

**State of Florida**

**Department of Transportation**

**District 6**

Project Manager: Dennis Fernandez, P.E.

State Project FM #'s: 407935-1-32-01 & 249940-1-32-01

**Prepared by:**

**Yaskin Engineering, Inc.**

11401 S.W 40<sup>th</sup> Street

Miami, Florida 33165



**FLOOR BEAM 1**

**Critical Member due to Load Rating**

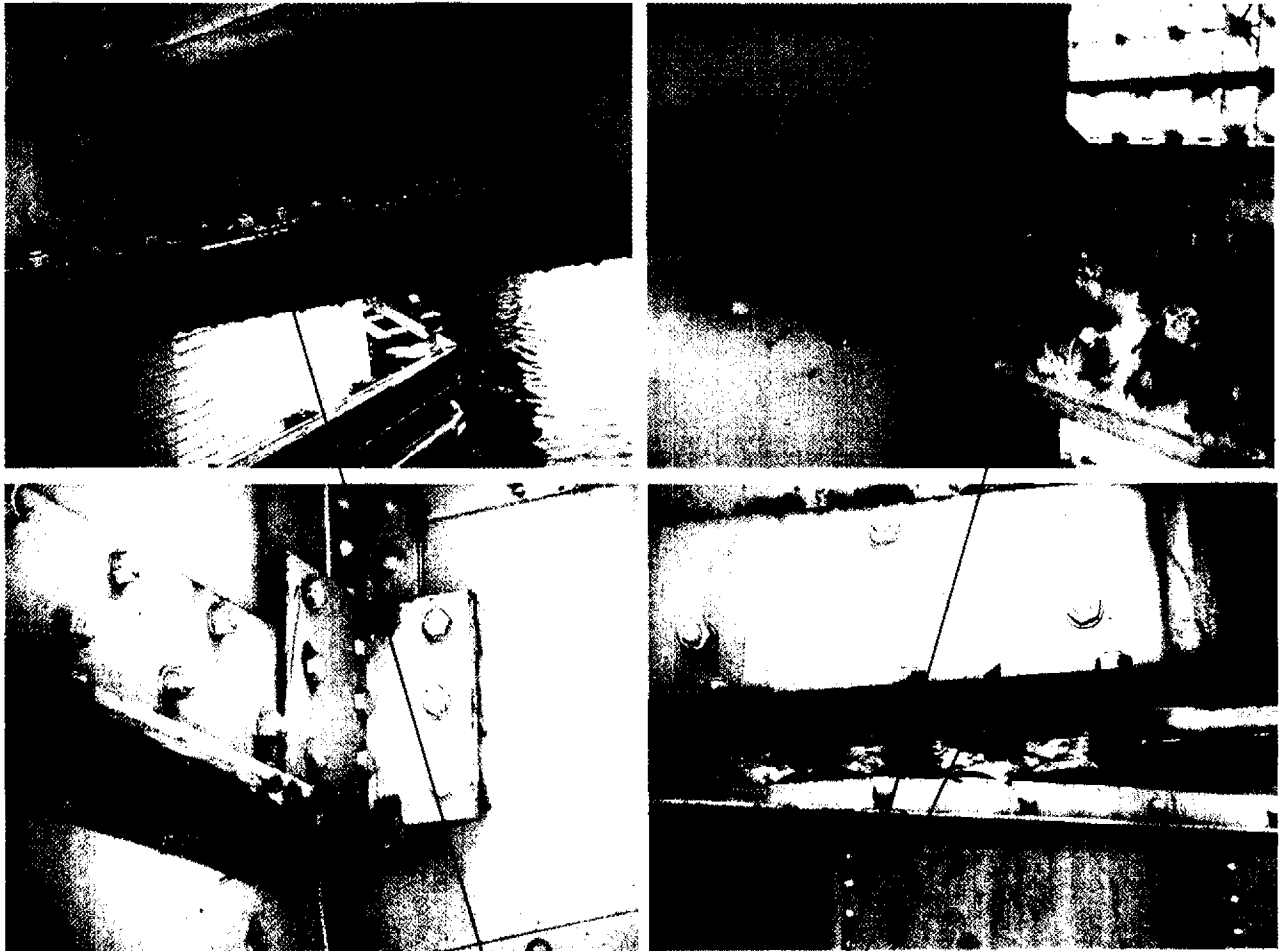
Member requires that the bridge be posted at operating level for almost all Florida legal trucks. Truck loads will be reduced from 10% to 30% of legal weights, even without consideration of loss of section.

**Member Condition**

In most cases this member is in good condition, except at ends where lateral bracing connections are made.

**Recommended Action**

Post bridge to reduce truck loading or take bridge out of service and replace beams in all 4 locations. Strengthening of this member is not viable due to the added weight and the need to balance bridge.



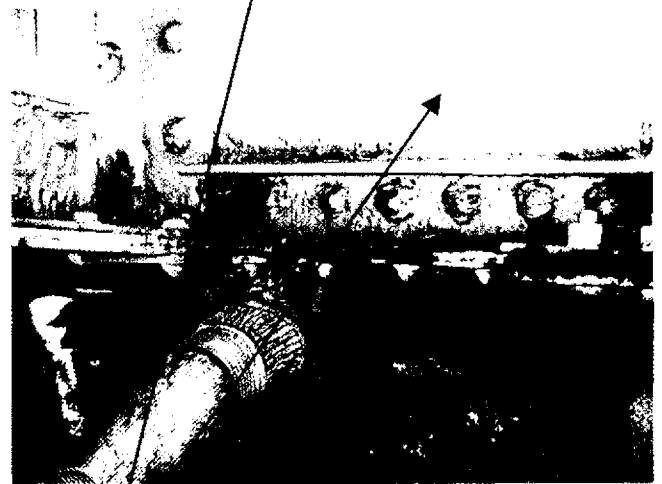
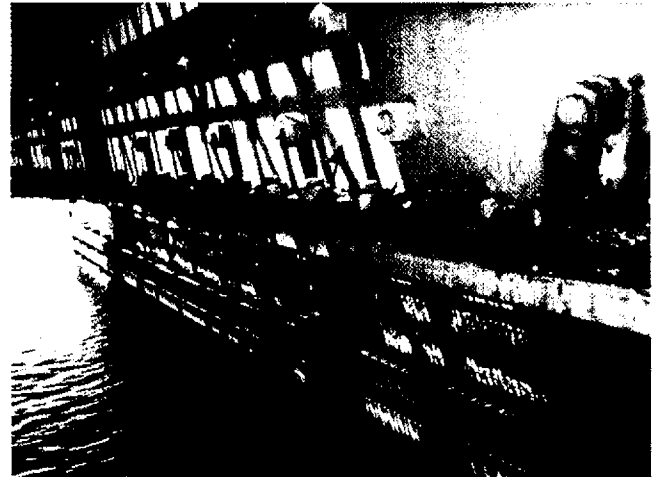
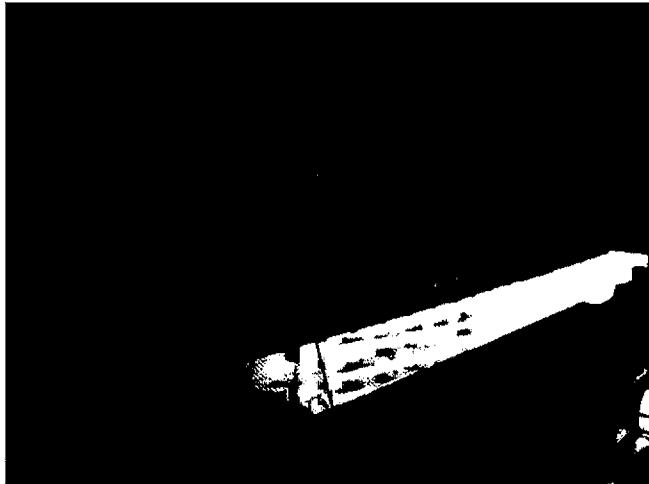
**FLOOR BEAM 2**

**Member Condition**

Member was cover plated in 1988 to repair badly corroded top and bottom flanges. Cover plates have also become badly corroded.

**Recommended Action**

Take bridge out of service and replace beams in all 4 locations or take bridge out of service and replace all cover plates in all 4 locations to strengthen.



### FLOOR BEAM 3

#### Member Condition

Member was cover plated and repaired in 1988 to correct badly corroded top and bottom flanges. Cover plates and repairs have now also become badly corroded.

#### Recommended Action

Take bridge out of service and replace beams in 4 locations.



**CONCRETE FILLED GRATING btwn Floor Beam 3 and Counterweight Girder 1**

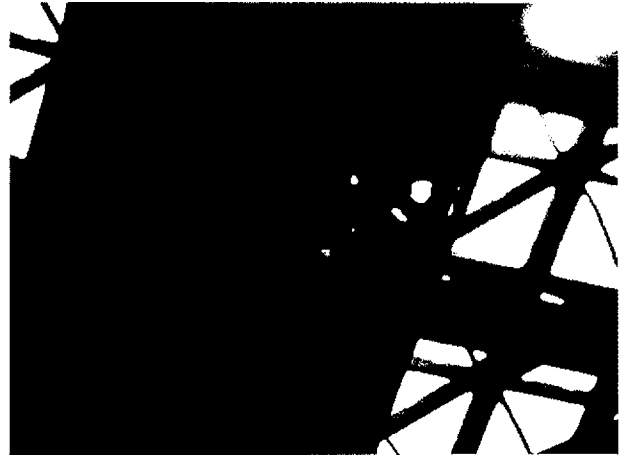
**Member Condition**

Grating is badly corroded – Note top flanges of supporting members

**Recommended Action**

Take bridge out of service and replace grating.





### STRINGERS BETWEEN FLOOR BEAM 1 AND FLOOR BEAM 3

#### Member Condition

In General these members are in good condition. There are however, three stringers that have sufficient corrosion to warrant their replacement.

#### Recommended Action

Clean and paint all stringers that are in good condition and replace the three stringers mentioned above.



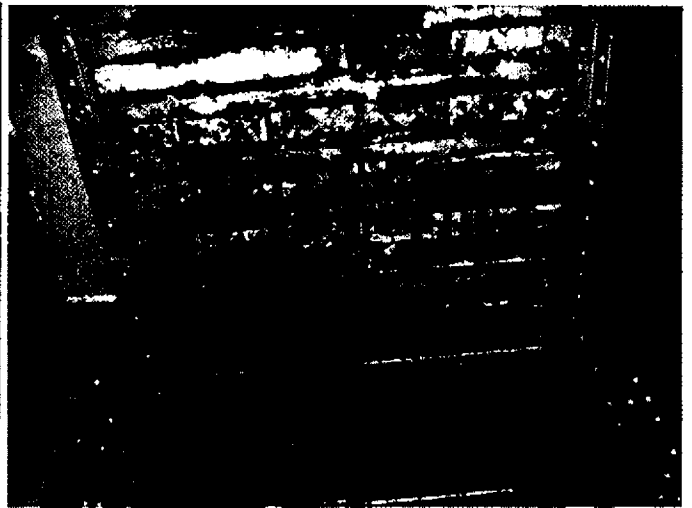
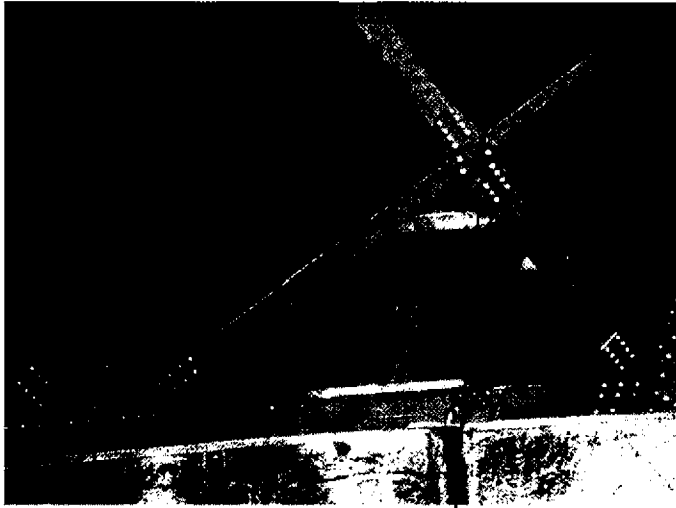
### STRINGERS BETWEEN FLOOR BEAM 3 AND COUNTERWEIGHT GIRDER 1

#### Member Condition

The top flanges of these stringers are corroded. They support the concrete filled grating, which as noted above is recommended to be replaced

#### Recommended Action

Replace all stringers.



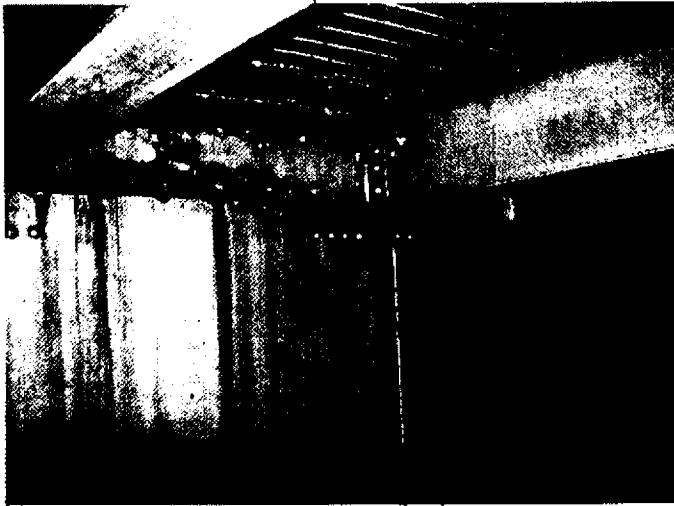
### **TRUNNION GIRDERS**

#### **Member Condition**

The top flanges of these girders are corroded. They support the concrete filled grating, which as noted above is recommended to be replaced.

#### **Recommended Action**

Remove and replace top flange of trunnion girders



**COUNTERWEIGHT GIRDER 1**

**Member Condition**

The top flanges of these girders was repaired in 1988 and these repairs are now corroded. The top flange and the repairs support the concrete filled grating, which as noted above is recommended to be replaced.

**Recommended Action**

Take Bridge out of service and remove and replace top flange repairs of counterweight girders 1



**COUNTERWEIGHT GIRDER 2**

**Member Condition**

This girder has become badly corroded.

**Recommended Action**

Take Bridge out of service and remove all corrosion and repair with new steel.



**CROSS BRACING and GUSSET PLATES**

**Member Condition**

Diagonal bracing members are made up of back-to-back angles and have slight to moderate corrosion. Almost all bracing members exhibit severe corrosion along the joint between angles. .

**Recommended Action**

Removed and replace these members with structural tee sections

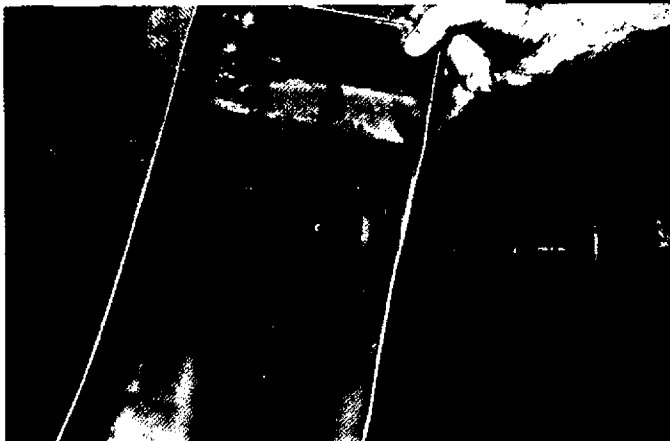
## Machinery

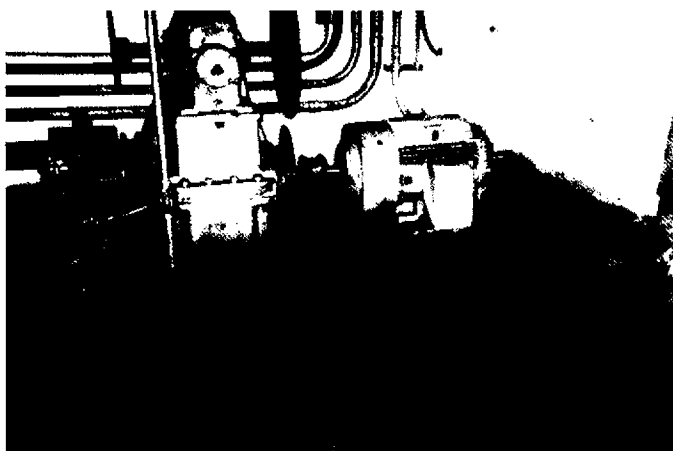


The span drive machinery was heavily corroded, heavily worn, and lacks a means of load sharing between the rack pinions. The rack teeth engaged with the leaves seated were deformed from restraining the leaves from bouncing under live load.



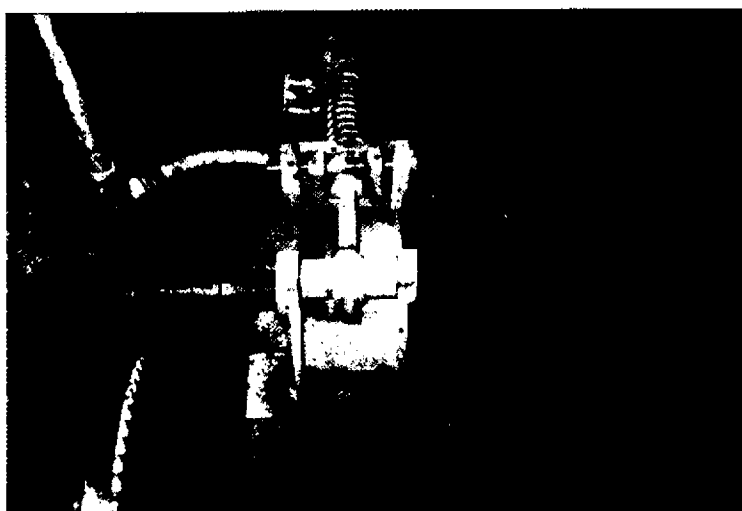
One of the enclosed reducers had heavy internal corrosion with rust particles contaminating the lubrication and potential bearing failure. Many bearings were inaccessible for clearance measurements due to the machinery configuration. Those bearings measured showed moderate to heavy wear.





The recently installed 20 HP motors are twice as powerful as the original 10 HP motors and subject the machinery to potential overstress. AASHTO operating horsepower requirement calculations justify the need for 20 HP motors, but the existing machinery was designed for 10 HP motors.

Each leaf originally had a motor and a machinery brake. The motor brakes were removed from each leaf when the 20 HP motors were installed. The remaining machinery brakes were in poor condition and may not stop or hold the leaves in an emergency stop or high wind condition.



The leaves bounced excessively under live load due to excessive span lock clearance, improper seating of the leaves on the live load shoes, and the removal of the tail locks. The connection between the end floor beam and span lock support beam was loose at the extreme north span lock.

The trunnions and trunnion bearings were observed to be in satisfactory condition, but were not well aligned. The inboard ends of the trunnions did not have typical alignment eccentrics. Wedges were used to align the trunnions. The trunnion bearing support pedestals were heavily corroded with 100% section loss of some members. Minor movement between trunnions, trunnion hubs, and main girders was observed on the northeast and northwest leaves.

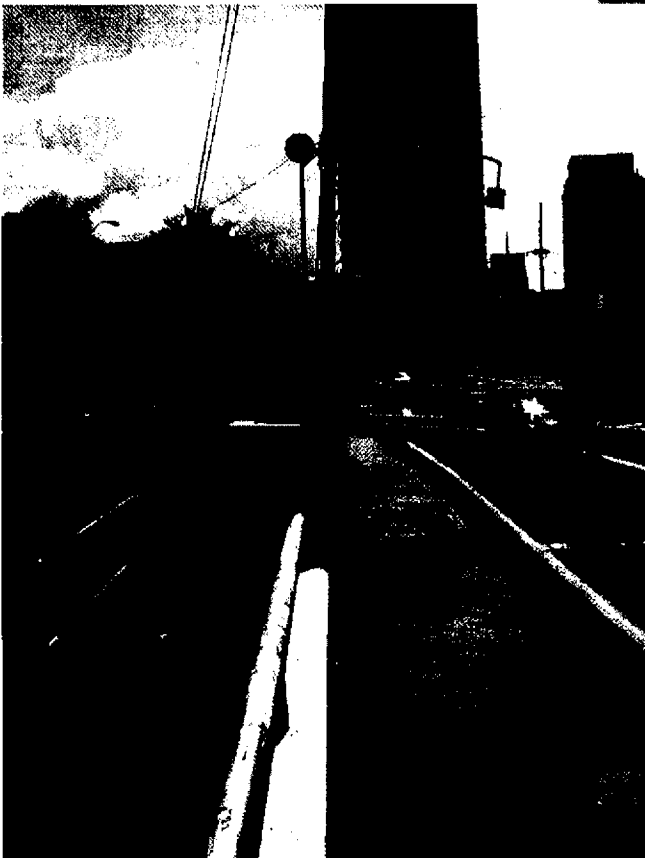
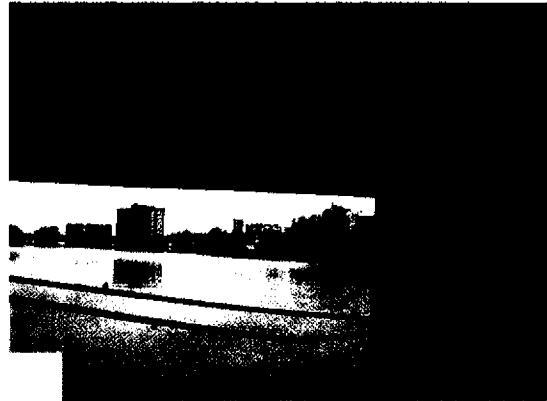
Tooth wear and the FDOT balance test report indicate all leaves were excessively span heavy.

#### **Recommended Action**

Take bridge out of service and replace all of the existing machinery. The system should provided a means of load sharing. Provide new span lock and tail locks.

## Electrical

A portion of the bridge electrical system was replaced during 2002. New equipment included leaf motors and motor drives, rotating cam limit switches, motor disconnect switches, motor control center, relay cabinet, control console and touch screen control. However, other major critical equipment and systems were not replaced, including the brakes, span locks, tail locks, traffic signals and the conduit and wiring system, and many



deficiencies remain. The leaf motor brakes were removed and not replaced. The bridge does not have a standby generator capable of operating the gates or leafs; only a very small generator to operate navigation lighting and the marine radio.

It is important that the full bridge rehabilitation now be performed to correct existing deficiencies and ensure proper and safe bridge operations. Some of the recently installed work will have to be removed to permit installation of the new equipment, and the PLC will have to be reprogrammed. Additional changes will result from revisions to the traffic lane reconfiguration.